

Claims

1. A fuel injection device for internal combustion engines, having a control valve (6), which is located between a high-pressure side (5) and a low-pressure side (7) and which opens or blocks the communication of a control chamber (2) with the low-pressure side (7), and having an outlet throttle (8) located between the control valve (6) and the low-pressure side (7), characterized in that

the control valve (6) has a first valve position, in which the communication of the control chamber (2) with the low-pressure side (7) is blocked; a second valve position, in which the control chamber (2) communicates with the low-pressure side (7) via a first outlet conduit (14); and a third valve position, in which the control chamber (2) communicates with the low-pressure side (7) via a second outlet conduit (16) having an outlet throttle (15).

2. The fuel injection device of claim 1, characterized in that the outlet throttle (15) of the second outlet conduit (16) has a higher throttle resistance than the outlet throttle (8) on the low-pressure side.

3. The fuel injection device of claim 1 or 2, characterized in that in the second valve position, the control chamber (2) communicates with the low-pressure side (7) via the second relief conduit (16) as well.

4. The fuel injection device of one of the foregoing claims, characterized in that the control valve (6) is embodied as a double seat valve, with a valve body (9) that is axially adjustable in a valve chamber (10) between two valve seats (11, 12), and one valve seat (11) communicates with the first outlet conduit (14), the other valve seat (12) communicates with the low-pressure side (7), and the valve chamber (10) communicates with the second outlet conduit (16).

5. The fuel injection device of one of the foregoing claims, characterized in that the control chamber (2) is connected to the high-pressure side (5) via an inlet throttle (4), which has a lesser throttle resistance than the outlet throttle (15) of the second outlet conduit (16).
6. The fuel injection device of one of the foregoing claims, characterized in that the first outlet conduit (14) is connected to the high-pressure side (5) via an inlet throttle (18).
7. The fuel injection device of one of the foregoing claims, characterized in that the valve body (9) of the control valve (6) is adjustable by means of a piezoelectric actuator (13).